

## CLAIMS

1. A method of milling cerium compound by means of a ball mill using a milling medium, characterized in that ratio  $H_b/r$  of radius  $r$  of a cylindrical ball mill container and depth  $H_b$  of the milling medium in the ball mill container disposed horizontally ranges from 1.2 to 1.9, and the ball mill container is rotated at a rotational speed which is 50% or less of critical rotational speed  $N_c=299/r^{1/2}$  of the ball mill container converted from the radius  $r$  expressed in centimeter.
2. The method of milling cerium compound according to claim 1, wherein the milling of the cerium compound is carried out in wet process or dry process.
3. The method of milling cerium compound according to claim 1, wherein the cerium compound is cerium oxide.
4. The method of milling cerium compound according to claim 1, wherein the ball mill container is rotated at a rotational speed which is 10% or more of  $N_c$ .
5. The method of milling cerium compound according to claim 1, wherein the radius  $r$  of the ball mill container is 5 to 50 cm.
6. The method of milling cerium compound according to claim 1, wherein the milling medium is partially stabilized zirconia ball.
7. The method of milling cerium compound according to claim 1, wherein the milling medium has a diameter of 0.3 to 25 mm.
8. The method of milling cerium compound according to claim 1, wherein zirconium is used in an amount of 100 ppm to 10000 ppm based on the cerium compound in terms of cerium (IV) oxide.
9. The method of milling cerium compound according to claim 1, wherein a water-soluble alkaline silicate is added, pH of a slurry containing the cerium compound is adjusted to 8 to 13, and then a wet milling is carried out to obtain cerium compound

covered with amorphous silica.

10. The method of milling cerium compound according to claim 9, wherein the water-soluble alkaline silicate is lithium silicate, sodium silicate, potassium silicate or quaternary ammonium hydroxide silicate.

11. A method of producing a slurry of cerium compound from an aqueous or organic solvent medium containing cerium compound by means of a ball mill using a milling medium, characterized in that ratio  $H_b/r$  of radius  $r$  of a cylindrical ball mill container and depth  $H_b$  of the milling medium in the ball mill container disposed horizontally ranges from 1.2 to 1.9, and the ball mill container is rotated at a rotational speed which is 50% or less of critical rotational speed  $N_c=299/r^{1/2}$  of the ball mill container using the radius  $r$  expressed in centimeter.